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ABSTRACT

A project to convert part of a Chinese language course ("Standard Chinese: A Modular Approach") to the PLATO computerized teaching system is reported. The project involved: (1) transcribing all the first sequence audiotapes for the first six instructional modules (these tapes present the material of each lesson); (2) rewriting the lesson management system or student router; (3) conversion of the audio materials, transfer of English text to the computer, writing/converting tape exercises, creating and adding graphics, and integration and debugging; (4) development of reading materials; (5) adaptation of tests and production of accompanying audio disks; (6) integration and modification of materials developed in an earlier project; and (7) evaluation and testing of the completed materials. The procedures used are outlined and results are discussed. Budget and staffing are also described. Materials appended to the report include: a diagram of a PLATO keyboard; menus for the new lesson management system; screen pages presenting the initial exchange in lesson two of the biographic information module (comprehension); and screen pages for production of the initial exchange in lesson two of the biographic information module. (MSE)

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ED356619

FINAL REPORT

TO

OFFICE OF INTERNATIONAL EDUCATION

U.S. DEPARTMENT OF EDUCATION

CONCERNING

GRANT NUMBER G008103238

"PREPARATION OF PROGRAMMED CHINESE

LANGUAGE MATERIALS"

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Pacific Studies
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The Department of Education, through your office, granted me $93,007 for the period 15 September 1981 to 14 September 1983 (with approved extensions to May 1985) to convert part of the Chinese language course Standard Chinese: A Modular Approach (SCAMA) to PLATO (the University of Illinois' teaching computer system). The project involved programming onto PLATO the first tape sequence materials from the core modules, the tests, development of reading materials, and integration and modification of work undertaken under an earlier project to convert the first tape sequence materials. These tasks were undertaken as follows:

PROGRAMMING OF FIRST TAPE SEQUENCE MATERIALS

Preparatory Work

The first task was transcribing all the first sequence (referred to as Comprehension One and Production One, or C1/P1) audio tapes for the first six modules in SCAMA, some 39 60-minute cassettes. These tapes present the material of each lesson: native speakers of Chinese read the dialogues, pattern sentences, and vocabulary, and an English speaker presents the commentary and explication of the lesson material. From these transcriptions we prepared the working scripts for making the master tapes by isolating the Chinese utterances we would need. The transcription of the English parts of the tape was also the basis for the commentary to be presented on the computer screen.

The next task was the rewriting of the student router or lesson management system, the computer software that makes the lessons work. Trial use of the router developed for our earlier

project, suggested that we needed a new approach. The earlier version forced the students to proceed through the exercises in one and only one fashion. Many students became frustrated because of the lack of choice, so we decided to go with a menu-drive approach. This proved to be much more popular with the students. In the process of redesigning the router we added a new drill routine which permits the student to record himself speaking the Chinese words and sentences and then to hear and compare his versions with the native speaker by playing back the native speaker, then the student, then the native speaker again. This new drill routine also required that new software be written for making the audio disks, since we now had to reserve some tracks on the disks for student recording.

Conversion Work

With the transcripts of the tapes and a new router available, the conversion work began. This involved several operations, conversion of the audio materials, transferring the English text to the computer, writing and/or converting tape exercises, creating and adding graphics, and integration and debugging.

Conversion of the audio materials was perhaps the most complex part of all. The original C1/P1 tapes were edited to eliminate all the English and to retain only one sample of each Chinese utterance. These edited master tapes were then used to make the audio disks. The disk making process itself was somewhat complicated. Each utterance on the tape, and the intervals between utterances, had to be measured and stored in the compu-

ter. Next the master tape had to be marked with computer generated tones to identify each utterance. The master tape so prepared was used to produce the audio disks. Finally, each disk was checked to make sure that all the messages were present and audible. Each phase of the audio disk production process was attended by numerous possible complications. The process of measuring utterances and intervals requires great concentration and any interruption or break in concentration usually meant having to repeat the entire process. This measurement process alone usually took close to half a day. Other electronic events in the language laboratory where we made the disks could introduce errors: static electricity produced from low humidity, turning on a light, or some of the automatic equipment starting up could generate errors in our work which necessitated redoing some or all of a disk. Generally, we tried to do this work when there were few opportunities for problems.

While I was at work mainly on transcribing the audio materials and my assistant was at work making audio disks, our programmer was working on the software for a new approach to presenting the material. As mentioned above, experience with student use of the second tape sequence (referred to in SCAMA as Comprehension 2 and Production 2, or C2/P2) lesson materials indicated that the rigid linear presentation mode was not successful. We elected to go with a menu-driven approach instead. This still left the question of how the C1/P1 materials were to be presented. As originally designed, the first half of each cassette lesson presents the material of the lesson with samples

of Chinese words and sentences for student comprehension. The second half of the cassette essentially repeats the same material, but this time providing opportunities for the student attempt to produce the Chinese words and sentences him or herself. Full instructions and pauses are given on the tape. This seemed to us rather uneconomical and that we would do well to collapse the process somewhat by presenting the material in small batches followed immediately by opportunities for student production. We rewrote several lessons in this fashion and we thought they would work well enough, but this presentation mode differed so radically from that on the tapes that we felt that on those occasions when the computer was not operating due to interference from thunderstorms, excessive heat and/or humidity, or due to crashes, students would find it difficult to switch from using the PLATO materials to using the original audio materials. Thus, we elected to follow the pattern of the audio tapes as closely as possible. The programmer developed a menu-driven routine which used the existing exercise types.

The material of each lesson was broken up into a series of "screen pages", sections of graphics and text which would appear on the screen accompanied in most instances by audio material (see appendix). In all instances, the student has control of the pace of instruction. The student can listen to audio material as many times as desired, can go back to review previous material at will, and can go forward to new material. After "paging" through a series of "screen pages" the student is presented with an exercise which provides drill on the material just

covered. Many of these exercises are forced choice drills on the English meaning of the Chinese sentences covered. Appendix I presents an example of the presentation of material. In the production portion of the lesson, the student "pages" through the production material as in the comprehension portion, but the exercises are production exercises: the student is presented with a stimulus in English and is required to respond to that stimulus in Chinese, recording his response, then comparing it with the correct response read by the native speaker. See Appendix II for an example of the production process. This mode of presentation takes away somewhat from the "conversational" nature of the original tapes, but it does provide an opportunity for the student to judge for himself how well he has produced the Chinese.

The exercises used for the C1/P1 materials were of the same types as those developed for the C2/P2 materials. For the most part, we converted all the exercises presented in the C1/P1 to computer format. In some cases exercises were added to those presented on the tapes where there was sufficient audio material available on the original tapes.. This gives the student basically the same experience whether the tape or the computer materials are used.

To liven up the screen presentations, we decided at a late date to add illustrations to the lessons. One of the Center's teaching assistants was hired (using replacement funds which I received as compensation for teaching Chinese at the University's high school) to produce drawings for the situations which appeared in the audio materials. Since this assistant did not wish to

do any work on the computer, we hired (also with replacement funds from the University high school) an assistant to plot the drawings on the computer. At a later point, these drawings can be replaced with with videotape or videodisk recordings of live actors engaged in the conversations and situations of the lessons.

The final step was to put together the screen text and graphics, exercises, and audio into a complete lesson and check it out for proper operation. It is at this point that the errors in spelling, grammar, tone marks, etc., were corrected. The fit of the graphics and the audio messages was also checked out at this time. When this step was completed, the lessons were ready for student use.

READING MATERIALS AND REMEDIAL MATERIALS

Reading Materials: At an early stage of the project we experimented by converting one of the reading exercises developed to drill the Chinese characters presented in the course. The exercise involved a reading passage and two comprehension questions. Putting the exercises on PLATO was time-consuming since it required creating a number of characters which were not already in our character stock. We were very disappointed in the results. It took on average over three minutes for a page of characters to plot even when the PLATO system was not busy. In prime time it takes considerably longer. Assuming there would be five to ten screen pages in each lesson, it would take an inordinately long time just to present the reading passages, especially if a student decided he wanted to read a passage of more than one page

over again, thus necessitating replotting. This struck us as far too much time for this type of reading exercise to be practical. We are still considering other approaches to the reading materials.

Remedial Materials: At an early stage we also postponed doing extensive work on remedial materials, partly because we wanted to see how well the lessons worked in the first place, and later because we were redesigning the student router and it seemed wise to wait until that work was completed. It then appeared that it was really to early to consider remedial materials at all. Developing remedial exerices would require development of an elaborate diagnostic system to identify and classify student error, then route the student to recommended exercises. While we felt (and still feel) that this was a worthwhile objective, it was far more work than we had originally envisioned. As a result, we have not undertaken any remedial work at all.

TESTS

The tests which accompany each module of SCAMA were adapted for use on PLATO and audio disks for the tests were produced. The test items used the same exercise types as the course does, but, as was the case with adapting the C2/P2 materials, some test items had to be changed to make the format of a test section uniform (i.e., all forced choice, all short answer, etc.) In attempting to implement our original plan for PLATO to inform the student of his grade and to provide remedial suggestions ran into problems similar to those to make the tests self-diagnosing we

ran into the same sorts of problems as in the remedial materials described above. In the opinion of the programmer, the system could not handle the wide range of variables that we would have to deal with for each student on each test. The student does get to see a report of the items he got wrong, but no routine was developed which would identify the areas in which additional work is recommended. We hope that at some later time, it will be possible to construct the tests we originally envisioned for use either with PLATO or with a microcomputer.

INTEGRATION AND MODIFICATION

Most of the work has been integrated as it is completed. The new menu-driven routine makes it possible for students to gain access to lesson parts as they are brought on line. If a student request a lesson or lesson type that is not yet on line, a message appears informing the student that his request cannot be honored since that lesson material is not yet available. As new material is brought on line, students receive a message when next they sign onto the computer informing them that the new material is now available for use. The Appendix contains a screen print of the new menu pages from which the student selects the lessons to be studied and the exercise types involved. The C1/P1 (instructional lesson) and C2/P2 (comprehension-production) form the core of the program. No material has been brought on line yet for the aural vocabulary drill, grammar and reading exercise types. Because students have found it confusing to have menu items for which there are no lesson materials, these exercise types have been dropped from the menu temporarily. When an

adequate number of exercises exist for these exercise types they will be returned to the menu.

EVALUATION AND TESTING

Our original plans called for testing the completed material with a summer intensive Chinese language course. The materials have, in fact, been used with summer and academic year classes for the past few years, but we did not have extensive C1/P1 materials ready for use. It is now clear that summer was not the best time to try out the materials on students. For the most part, students simply did not have the time to do all their class preparation on PLATO: some students were enrolled in other classes, many had to work in the afternoon and evening, and the PLATO lab hours were severely curtailed during the summer session. As a consequence, only one or two students manage to hang on through the summer. Even during the academic year, less than 25 percent of the class continues working with PLATO after the first few days. This is due to a number of factors: student schedules tend to become more crowded as the semester progresses and students become more casual about requirements for some courses. As a general rule, students seem to stop listening to some of the tapes after completing the second module and will only start listening to them again when forced to. In addition, students find using the materials on tape more flexible since they can listen to the tapes wherever they can have a cassette player, while using PLATO requires making a special trip to the PLATO lab. Many students are become frustrated with the audio devices, which have a tendency to act up. Even students who

enjoy using PLATO for Chinese and other subjects, find that the problems with the audio devices discourages them from continuing to use PLATO for Chinese language work.

BUDGET

Personnel

Professor MacDonald was in general charge of the project and did the transcribing, the lesson design work, and encoding most of the lesson material. During the first year, I combined support from the grant with a sabbatical leave which left me for the most part free. During the year I was involved in teaching a Chinese language class at the University's High School. I did this teaching partly to honor a committment made before submission of this grant request, and partly because we hoped to use the PLATO materials with the high school class. During the following years I returned to teaching and administrative duties except for about one-quarter of my time which was devoted to continuing work on the project. My summers have been devoted to the project since its initiation.

Ms. Paula Chen Rohrbach served as pedagogical assistant for the project from its inception until she left the campus to assume a teaching position in Oklahoma. Ms. Rohrbach worked primarily in editing the audio tapes and preparing the audio disks and did most of the work on the tests. She also servied as native speaker informant and linguistic consultant in the design process.

Mr. Maurice Wong, who was also employed by the Language Learning Laboratory, served as the programmer on a quarter-time

basis for the first year of the project. Mr. Wong was responsible for updating the lesson routines developed under the earlier project.

Mr. Stephen Simpson replaced Mr. Wong. Mr. Simpson, who was also employed by the Language Learning Laboratory, worked on the project on a quarter-time basis. Mr. Simpson has continued to provide uncompensated programming services and has functioned as a consultant since funding for the project ended. Mr. Simpson is responsible for a complete rewrite of the student router (necessitated in part by Mr. Wong's sketchy documentation), for the programming for the new exercise types, for the router used in the testing program and for the development of a number of utility routines that make the entire program run more smoothly.

Other persons were employed mostly from funds made available to me as partial salary replacement for teaching at the University's high school. Ms. Hsin-fang Fu was employed to do the illustrations to be used in the lessons. Ms. Deanna Bradshaw was employed to transfer the illustrations to the computer. Ms. Varaporn Surintramont was employed to do some tape editing and disk making on an hourly basis.

Materials

The funds requested for audio disks were sufficient to provide enough copies of each disk to permit several students to do the lessons at the same time, and to purchase audio disks for the new audio device. Though the new audio device is not yet avalable for student use in the Language Laboratory, when the device is available, we will have materials ready .

Funds requested for disk space were insufficient and we later requested that unexpended funds from other categories be used to purchase additional disk space.

No funds were expended for screen images. The original intent was to provide a hard copy of all material which the student would see on the screen as an off-line reference. Since we elected to stick as closely as possible to the audio tape format, a copy of the on-line material would be redundant since the current textbook is more than adequate for reference purposes.

Funds for recording charges covered the costs of recording tape, tape copying, and laboratory time. Since we used edited tape rather than recording new ones, the funds were more than adequate.

The funds requested for office supplies were sufficient to cover costs of office materials, photocopying and telephone charges.

SUMMARY OPINION

In spite of the fact that the project is not yet completed, we feel we made adequate progress during the grant period, given the delays due to personnel and system problems. Little work on the C1/P1 materials could be done until the C2/P2 conversion project was completed. This work was completed in late spring 1982. This introduced a major delay in beginning work on the C1/P1 conversion. It is unfortunate that we overestimated the capabilities of the computer which made the reading and testing materials unworkable. It is also unfortunate that we failed to

anticipate the greater complexity of the C1/P1 project, particularly the complex procedures for producing audio disks, however, once we came to grips with them, things moved along smoothly. The new router and the new exercise routines work as we intended them and are substantial improvements to the entire program. Work on the project will continue until the entire program is completed and ready for general use. Since all the work that remains to be done is purely mechanical, completion is only a matter of time. When all work has been completed, we will submit an updated report and make these materials available to those individuals and institutions wishing to use them.

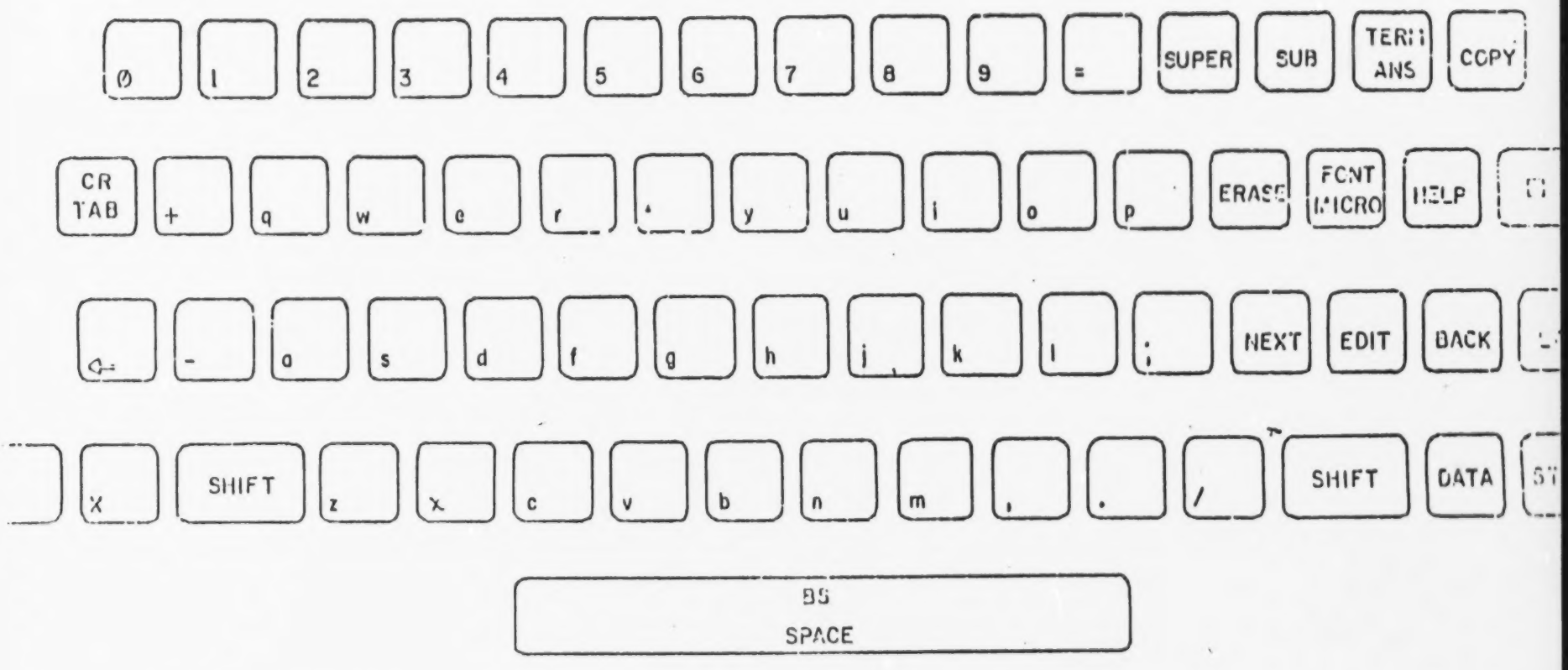
APPENDICES

I. PLATO keyset

II. Menus for new router

III. Screen pages presenting initial exchange in lesson two of Biographic Information module (comprehension 1)

IV. Screen pages for production of initial exchange in lesson two of Biographic Information module (production 1)



By pressing this key	the student can
NEXT	go on to the next screen page or exercise item
LAB	hear an audio message
ERASE	erase anything he has just typed
HELP	get help with the exercise
SHIFT & TERM	leave a message commenting on the material or asking for special assistance
SHIFT & STOP	quit the lesson

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APPENDIX II: Menus for new router

CHINESE LESSONS
List of Modules

a.	Orientation	(ORN)
b.	Biographic	(BIO)
c.	Money	(MON)
d.	Directions	(DIR)
e.	Transportion	(TRN)
f.	NOT YET AVAILABLE	(MTG)

Reference Modules

g.	Pronunciation and Romanization	(P&R)
h.	Numbers	(NUM)
i.	NOT YET AVAILABLE	(T&D)

Choose a module by letter
or press SHIFT HELP for help on using PLATO
SHIFT MARK to write a comment on the lesson
SHIFT STOP to exit the lesson

Lessons in Module: BIOGRAPHY

1. Lesson 1
2. Lesson 2
3. Lesson 3
4. Lesson 4
5. Lesson 5
6. Lesson 6
7. Lesson 7
8. Lesson 8

Choose a lesson by number
or
Press BACK to return to List of Modules

>

Module BIOGRAPHY Lesson 2

Choose an exercise type:

1. Instructional lesson
2. Aural vocabulary drill
3. Grammar
4. Comprehension-production
5. Reading

or press BACK to choose another lesson

Choose an exercise by number, then press NEXT
An asterisk (*) indicates a completed exercise

1. Here-there-where?
2. Comprehension review
3. Here-there-where? production
4. Use of 'ba' and short answer 'yes'
5. Final production review

APPENDIX III:

Screen pages presenting initial exchange in lesson two of

Biographic Information Module

(Comprehension I)

BIO 2a 1
Page 1 of 13

* This unit is set in the Republic of China, or ROC. In this lesson you'll learn to understand more questions and answers about where you're staying, plus questions and answers about where you work.

Press NEXT when you are ready to begin.

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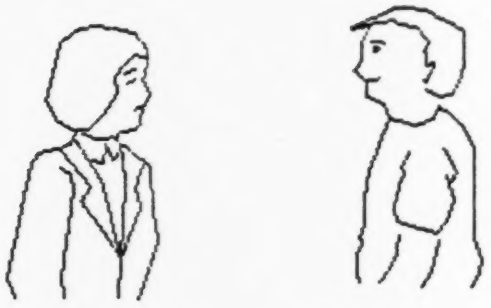

Peter Cook, Kè Bìdé, is an American student who has just arrived in Beijing and is staying at the Ambassador Hotel. Listen as he talks with Miss Gāo.

CAB to replay NEXT to proceed

Audio:

Gao: 'Ni zhuzai nali?' (=Where are you staying?)

Cook: 'Wo zhuzai Guobin Dafandian.' (=I'm staying at the Ambassador Hotel.)

dà fàndiàn

In Taiwan, most hotel names use the term dàfàndiàn, lit., 'great hotel'. Listen to 'great hotel'.

to replay to proceed

Audio:

'dafandian' (=great hotel)

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Guóbīn Dàfàndiàn

·Now here's the word for 'Ambassador Hotel'. Literally, the word guóbīn means 'guest of the country.'

TAB to replay NEXT to proceed

Audio:

'Guobin Dafandian' (=Ambassador Hotel)

3 4 5

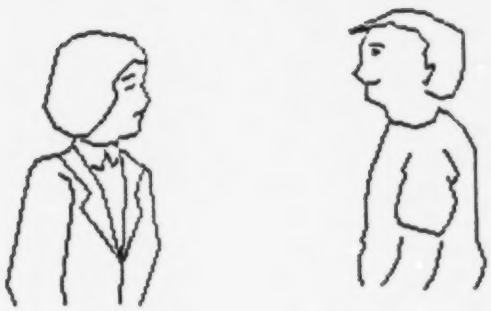
nálǐ

In non-Beijing dialects of Standard Chinese the usual word for 'where?' is not nǎr, but nálǐ. Notice that the tone pattern is rising-neutral. This is because the syllable lǐ is a basic low-tone syllable and, as you will remember, the first of two low tone syllables shifts to a rising tone.

to replay to proceed

Audio:

'nalǐ' (=where?)



Now listen to the exchange again.

[REPLAY] to replay [NEXT] to proceed

Audio:

Gao: 'Ni zhuzai nali?' (=Where are you staying?)

Cook: 'Wo zhuzai Guobin Dafandian.' (=I'm staying at the Ambassador Hotel.)

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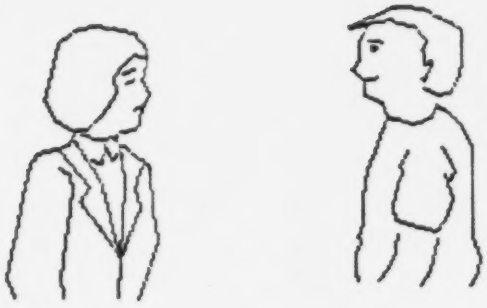
APPENDIX IV:

Screen pages for production of initial exchange in lesson two of Biographic Information Module

(Production I)

BIO 2a 1
Page 2 of 19



Listen to this exchange.

ERASE to replay NEXT to proceed

Audio:

Gao: 'Ni zhuzai nali?' (=Where are you staying?)

Cook: 'Wo zhuzai Guobin Dafandian.' (=I'm staying at the Ambassador Hotel.)

dà fàndiàn

If you were in Taiwan you might be staying at the Ambassador Hotel. As you remember, dàfandiàn translates literally as 'great hotel' and is used in many hotel names. Try saying 'hotel' after the speaker.

- [LINE] to play native speaker
- [DATA] to record yourself
- [SHIFT] [LINE] to compare both
- [NEXT] to go on

Audio:

'dafandian' (=great hotel)

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guóbīn

Now repeat the word for 'ambassador', which means 'official visitor'. The tones are rising, high.

AFTER to play native speaker
DATA to record yourself
SHIFT AFTER to compare both
NEXT to go on

Audio:

'guobin' (=ambassador)

Guóbīn Dàfàndiàn

Now repeat 'Ambassador Hotel'.

CTRL to play native speaker
DELETE to record yourself
SHIFT DELETE to compare both
NEXT to go on

Audio:

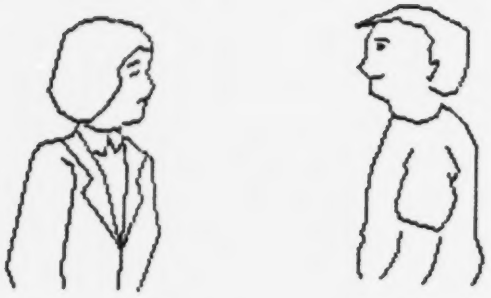
'Guobin Dafandian' (=Ambassador Hotel)

Now repeat, 'I'm staying at the Ambassador Hotel.'

LAB to play native speaker
DATA to record yourself
SHIFT LAB to compare both
NEXT to go on

Audio:

'Wo zhuzai Guobin Dafandian.' (=I'm staying at the Ambassador Hotel.)



Listen to the question in the first exchange again.

REPEAT to replay NEXT to proceed

Audio:

Gao: 'Nǐ zhùzài nǎlǐ?' (=Where are you staying?)

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nálì

You'll notice that a slightly different form of the word nǎr was used to ask 'where?': Nálì. The word nálì is actually more common throughout most of China, especially in the south. For the rest of this lesson, assume that we're in Taiwan, and that nálì is the most appropriate equivalent for 'where?'

Now listen to the word for 'where', repeat, record and compare.

LINE to play native speaker
DRAW to record yourself
SHIFT LINE to compare both
NEXT to go on

Audio:

'nalì' (=where?)

Where its counterpart nǎr has a low tone, náli has a rising tone. This is because the second syllable was originally lǐ with a low tone which affected the low tone of nǎ-. However, the low tone of lǐ is now neutral in this combination, and we're left with náli, rising tone, neutral tone.

Now press NEXT to hear the question again, then repeat, record and compare.

LAB	to play native speaker
DATA	to record yourself
SHIFT+LAB	to compare both
NEXT	to go on

Audio:

'Nǐ zhùzài nǎlǐ?' (=Where are you staying?)

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